



Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520  
800-278-1254 • [www.nlslab.com](http://www.nlslab.com)

January 15, 2024

Mark Mackey  
Kronenwetter Water & Sewer Utility  
1582 Kronenwetter Dr  
Mosinee, WI 54455

Project: Investigative UCMR5 Testing  
Project Number: UCMR5 Testing  
Work Order: CB15411  
Received: 12/21/23

Enclosed are the results of analyses for samples received by our laboratory on 12/21/2023. If you have any questions concerning this report, please feel free to contact a client service representative at [clientservices@nlslab.com](mailto:clientservices@nlslab.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald T. Krueger".

Ronald T. Krueger For Tracy Huber  
Northern Lake Service, Inc.



Kronenwetter Water & Sewer Utility  
1582 Kronenwetter Dr  
Mosinee, WI 54455

Project: Investigative UCMR5 Testing  
Project Number: UCMR5 Testing  
Project Manager: Mark Mackey

Reported:  
1/15/24 13:50

Work Order:  
CB15411

### Sample Summary

Descriptions of all qualifiers listed throughout this report can be found on the Qualifiers and Definitions Page.

Lab ID	Sample	Matrix	Sample Type	Qualifiers	Date Sampled	Date Received
CB15411-01	Raw 1	DW			12/20/23 7:45	12/21/23 8:45
CB15411-03	Raw 2	DW			12/20/23 8:15	12/21/23 8:45

#### Analysis Qualifiers:

LabNumber	Analysis	Qualifier
CB15411-01	UCMR5 EPA Method 533	FBNA
CB15411-01	UCMR5 EPA Method 537.1	FBNA
CB15411-03	UCMR5 EPA Method 533	FBNA
CB15411-03	UCMR5 EPA Method 537.1	FBNA

#### Cancelled Tests:

LabNumber	SampleName	Analysis	Cancelled	Initials
CB15411-02	Raw 1 Field Blank	Perfluorinated Chemicals by EPA Method 533	1/12/24 14:10	CSC
CB15411-02	Raw 1 Field Blank	Perfluorinated Chemicals by EPA Method 537.1	1/2/24 6:01	CSC
CB15411-04	Raw 2 Field Blank	Perfluorinated Chemicals by EPA Method 533	1/12/24 14:10	CSC
CB15411-04	Raw 2 Field Blank	Perfluorinated Chemicals by EPA Method 537.1	1/2/24 6:01	CSC



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Sample Results

Sample: Raw 1

CB15411-01 (DW) Sampled: 12/20/23 07:45

Analyte	Result	Qualifier	MRL	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles</b>										
perfluorobutanoic acid (PFBA)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoropentanoic acid (PFPeA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorobutanesulfonic acid (PFBS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.020		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorohexanoic acid (PFHxA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoropentanesulfonic acid (PFPeS)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoroheptanoic acid (PFHpA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorohexanesulfonic acid (PFHxS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoroheptanesulfonic acid (PFHpS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorooctanoic acid (PFOA)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorononanoic acid (PFNA)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorooctanesulfonic acid (PFOS)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0020		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorodecanoic acid (PFDA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2FTS)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluoroundecanoic acid (PFUnA)	ND		0.0020		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
perfluorododecanoic acid (PFDoA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	1
Surrogate: (EIS) MPFBA	88%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	
Surrogate: (EIS) MSPPeA	92%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:14	RAW	EPA 533	



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Reported:  
1/15/24 13:50

Work Order:  
CB15411

Sample Results (Continued)

Sample: Raw 1 (Continued)

CB15411-01 (DW) Sampled: 12/20/23 07:45

Table with 11 columns: Analyte, Result, Qualifier, MRL, MCL, Units, Date Prepared, Date Analyzed, Analyst, Method, Lab Cert Code. Rows include Semi-Volatiles (Continued) with various surrogate results and percentages, and specific analytes like n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) with ND results.

Sample: Raw 2

CB15411-03 (DW) Sampled: 12/20/23 08:15

Table with 11 columns: Analyte, Result, Qualifier, MRL, MCL, Units, Date Prepared, Date Analyzed, Analyst, Method, Lab Cert Code. Rows include Semi-Volatiles and specific analytes like perfluorobutanoic acid (PFBA) with ND results.



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Reported:  
1/15/24 13:50

Work Order:  
CB15411

**Sample Results (Continued)**

**Sample: Raw 2 (Continued)**

**CB15411-03 (DW) Sampled: 12/20/23 08:15**

Analyte	Result	Qualifier	MRL	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles (Continued)</b>										
perfluorobutanesulfonic acid (PFBS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.020		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorohexanoic acid (PFHxA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluoropentanesulfonic acid (PFPeS)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluoroheptanoic acid (PFHpA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorohexanesulfonic acid (PFHxS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluoroheptanesulfonic acid (PFHpS)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorooctanoic acid (PFOA)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorononanoic acid (PFNA)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorooctanesulfonic acid (PFOS)	ND		0.0040		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0020		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorodecanoic acid (PFDA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2FTS)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluoroundecanoic acid (PFUnA)	ND		0.0020		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0050		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
perfluorododecanoic acid (PFDoA)	ND		0.0030		ug/L	1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	1
Surrogate: (EIS) MPFBA	85%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M5PFPeA	100%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M3PFBS	87%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M2-4:2FTS	132%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M5PFHxA	89%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	



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**Sample Results (Continued)**

**Sample: Raw 2 (Continued)**

**CB15411-03 (DW) Sampled: 12/20/23 08:15**

Analyte	Result	Qualifier	MRL	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles (Continued)</b>										
Surrogate: (EIS) M4PFHpA	88%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M3PFHxS	91%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M2-6:2FTS	102%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M8PFOA	83%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M9PFNA	80%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M8PFOS	95%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M2-8:2FTS	131%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M6PFDA	84%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M7PFUdA	83%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) MPFDoA	86%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
Surrogate: (EIS) M3HFPODA	88%		Limits: 50-200%			1/5/24 6:47	1/8/24 21:38	RAW	EPA 533	
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0060		ug/L	12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	1
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0050		ug/L	12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	1
perfluorotridecanoic acid (PFTrDA)	ND		0.0070		ug/L	12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	1
perfluorotetradecanoic acid (PFTA)	ND		0.0080		ug/L	12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	1
<hr/>										
Surrogate: (SURR) C13-PFHxA	99%		Limits: 70-130%			12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	
Surrogate: (SURR) C13-HFPODA	89%		Limits: 70-130%			12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	
Surrogate: (SURR) C13-PFDA	94%		Limits: 70-130%			12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	
Surrogate: (SURR) d5-NETFOSAA	86%		Limits: 70-130%			12/26/23 5:38	12/28/23 13:04	RAW	EPA 537.1, Rev 2.0	



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**List of Certifications**

<b>Code</b>	<b>Description</b>	<b>Number</b>	<b>Expires</b>
1	EPA Laboratory ID No.	WI00034	1/1/26



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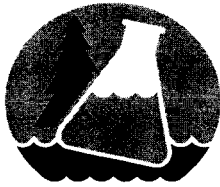
**Work Order:**  
CB15411

### Qualifiers and Definitions

Item	Definition
FBNA	The field sample had no detects, therefore the corresponding trip blank/field reagent blank was not analyzed.
ND	Analyte NOT DETECTED at or above the LOD or MRL.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
NA	Not Applicable.
Dry	Dry Weight Basis.
Wet	Wet Weight Basis.
% Dry	Equal to: (mg/kg dry) / 10000.
1000 ug/L	Equal to: 1 mg/L.
MCL	Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

All LOD/LOQs adjusted to reflect preparation volumes, dilutions, and/or solids content.





# Northern Lake Service Inc.

ENVIRONMENTAL ANALYTICAL LABORATORY

400 N Lake Ave | Crandon, WI 54520 | 800-278-1254 | www.nslslab.com

## UCMR5 Sample Collection and Chain of Custody Record

Kronenwetter Water & Sewer Utility -- Investigative UCMR5 Testing

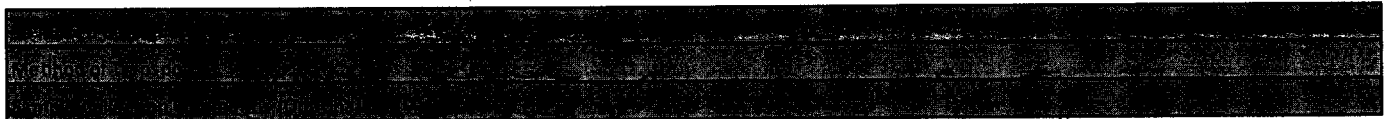
Bottle Order Number: C001945

(Client please fill in date/time)

Sample Point ID Code	Collection Date/Time	533	537.1
Raw 1	12/20/23 0745	X	X
Raw 1 Field Blank	12/20/23 0745	X	X
Raw 2	12/20/23 0815	X	X
Raw 2 Field Blank	12/20/23 0815	X	X

The EPA Unregulated Contaminant Monitoring Program has specific sample receipt temperature requirements. Samples received within 48 hours from collection must be received < or = 10° C. Samples received greater than 48 hours from collection must be received < or = 6° C

(Client please sign)



		(To be filled out by lab upon arrival)			
Received at NLS by (Signature)	Date/Time	Rec Temp	200.7	533	537.1
<i>[Signature]</i>	12/21/23 0815	2.0		2.0	1.8
Remarks and other Information: <i>Specs</i>					

**IMPORTANT:** To meet regulatory requirements, this form must be completed in detail and included in the cooler containing the samples described

For Lab Use Only										
Method 533	S1B1	S1B2	S2B1	S2B2	S3B1	S3B2	S4B1	S4B2	S5B1	S5B2
pH (6-8)	7.18	7.18	7.28	7.22						
Res Chlorine (<0.1)	CL	CL	CL	CL						
	1		2							
Method 537.1	S1B1	S1B2	S2B1	S2B2	S3B1	S3B2	S4B1	S4B2	S5B1	S5B2
pH (6-8)	7.34	7.35	7.33	7.31						
Res Chlorine (<0.1)	CL	CL	CL	CL						
Method 200.7	S1	S2	S3	S4	S5					
Acidified	NA									

CB15411

